Original Research Article

HEALTH INSURANCE COVERAGE AND BARRIERS AMONG RESIDENTS OF URBAN SLUMS IN BANGALORE: A COMMUNITY BASED CROSS-SECTIONAL STUDY

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ABSTRACT

Background: India's rapid urbanization has led to a proportional increase in slum populations, where access to healthcare remains limited despite their proximity to medical facilities. The urban poor face challenges such as weak referral systems, low awareness of government health programs, and financial constraints, resulting in poor health-seeking behavior. Health insurance serves as a key mechanism to mitigate financial barriers and enhance healthcare accessibility. However, limited awareness and systemic barriers continue to hinder insurance uptake and renewal. **Objectives:** This study aimed to assess the prevalence of health insurance coverage among adults residing in urban slums of Bangalore and to identify the major barriers preventing enrolment and renewal of health insurance schemes.

Material and Methods: A community-based cross-sectional study was conducted among 1,124 adult residents of 16 randomly selected urban slums near an Urban Health Training Centre of a medical college between August and December 2024. Participants aged 18 years and above were interviewed using a pre-tested, semi-structured questionnaire covering demographic characteristics, insurance coverage, and barriers to enrolment. Data were analyzed using descriptive statistics and Chi-square tests, with a p-value <0.05 considered statistically significant.

Results: Among the 1,124 respondents, 39.5% were enrolled in a health insurance scheme, while 60.5% remained uninsured. Of those insured, 29.5% had not renewed their policy, primarily due to low awareness (70.99%) about the importance of continuous coverage. The main reasons for non-enrolment included lack of awareness of insurance benefits (57.49%), complex enrolment procedures (19.89%), mistrust in providers (9.67%), high premium costs (7.90%), and inadequate documentation (5.04%). Significant associations were observed between education, income, socioeconomic status, and insurance coverage (p<0.000).

Conclusion: The study reveals substantial gaps in health insurance awareness, enrolment, and renewal among urban slum populations. Strengthening targeted awareness programs, simplifying administrative procedures, enhancing affordability, and improving trust in insurance systems are essential to expand coverage and achieve equitable healthcare access.

Keywords: Health insurance, Urban slums, Barriers to healthcare, Out-of-pocket expenditure, Health policy, Bangalore.

INTRODUCTION

India's rapid urbanization has led to a proportional increase in slum populations. The absolute increase in urban population during 2001-2011 has been larger than the absolute increase in rural population. Level of urbanization in India increased from 27.81% in 2001 to 31.16 in 2011 (Census of India 2011).[1] Accompanying the rapid pace of urbanization, there has been a faster growth in the population residing in unorganized habitats i.e. slums.[2,3] Despite the supposed proximity of the urban poor to urban health facilities there is underutilization .The main reason for underutilization is lack of awareness among slum dwellers about the programs that are implemented to save and improve the poor population of the country.[2]

India being home to largest slum in Asia, the financial burden of healthcare is a universal phenomenon, traversing different socio-economic and cultural settings but the implications are more pronounced among the urban poor who do not enjoy coverage of state sponsor program like national rural health mission (NRHM).[4] The public health impacts of health problems in slum areas are immense.[5] Health insurance could be a way of removing the financial barriers and improving accessibility to quality medical care by the poor and also an effective social security mechanism.[6]

Hence this study was conducted with the aim to assess health insurance coverage by urban slums of Bangalore. The primary objectives of the study were to assess the universal health insurance coverage under ABRK, CGHS, ESIS, RSBY, Yashaswini health insurance, Private health insurances in study subjects and secondary objective was to determine the barriers to health insurance uptake.

MATERIALS AND METHODS

A community-based cross-sectional study was carried out on residents of urban slums near the Urban Health Training Centre of a medical college for a duration of five months, from August 2024 to December 2024. Out of 28 urban slums, 16 slums were selected using the cluster sampling method, with each slum considered a cluster. From each cluster, were chosen based on proportional probability sampling (a type of cluster sampling), leading to a total sample size of 1,084 study subjects. Sample size7 was calculated using the formula $n=(Z_{1-\alpha})^2 \, p*q \, / \, d^2$, where p=77.65, q= 22.35, z=1.96 at 95%, d=4% of error ,(Design effect of 0.65). Houses in each cluster are selected by systematic random sampling. Residents aged 18 years and above who had resided in the area for more than one year were included in the study. One member of each family is interviewed, if the person available is not aware of family insurance coverage data from next house is collected .After obtaining ethical approval from the Institutional Ethical Committee, the study was initiated. The calculated sample size was 1080. However, anticipating possible non-response, incomplete questionnaires, or exclusions during data cleaning, a slightly higher number of participants were enrolled. Finally, complete data were obtained from 1124 participants, which were included in the analysis. A total of 1,124 adults were surveyed, and participants were declared unavailable if they were not present even after three repeated house visits. Individuals below 18 years of age, temporary residents and those unwilling to participate were excluded. The purpose of the study was explained, verbal and written consent were obtained from the participants before commencing the interviews. Only those who provided consent were interviewed.

Data was collected through face-to-face interviews conducted in the local language to ensure clarity and comprehension. A pre-tested, semi-structured questionnaire was utilized to collect information on demographic details and socioeconomic profiles. The Modified BG Prasad classification was used to calculate socioeconomic status. Data on health insurance coverage was collected by assessing the total population covered under health insurance and the schemes availed in the past 12 months. Barriers to availing health insurance, such as limited awareness, high premium costs, mistrust in insurance providers, or complex enrolment procedures, were also assessed. Awareness regarding the benefits of availing various health insurance schemes was provided for those not enrolled and renewed their insurance during the study.

The health insurance schemes included in the study were:

i) ABRK (Ayushman Bharat Aarogya Karnataka) (2018), which covers up to ₹5 lakh per family per year for secondary and tertiary care hospitalization for eligible households (BPL); ii) CGHS (The Central Government Health Scheme), which provides comprehensive healthcare to central government employees, pensioners, and their dependents, funded by the government with a monthly subscription from beneficiaries based on pay grade or pension; iii) The Employees' State Insurance Scheme (ESIS), an Indian social security and health insurance scheme for workers covering sickness, medical care, maternity, unemployment, work injury, and death; iv) RSBY (The Rashtriya Swasthya Bima Yojana) (2008), a government health insurance scheme providing coverage up to INR 30,000 per annum for hospitalization and medical expenses for Below Poverty Line (BPL) families and other vulnerable groups; v) Yashaswini Health Insurance, a cooperative scheme initiated by the Government of Karnataka to provide affordable healthcare to rural farmers and cooperative society members.

The data was analysed using SPSS software. Findings were expressed as descriptive statistics and the Chi-square test was used to identify associations between categorical variables. A p-value of less than 0.05 was considered statistically significant.

RESULTS

The study findings indicate significant gaps in health insurance enrolment and continuity among the surveyed subjects. Out of the total study population, 39.5% were found to be enrolled in a health insurance scheme. However, within this group, 29.5% had not renewed their health insurance, with a considerable proportion (70.99%) attributing this to low awareness regarding the importance of continuous coverage.

Table 1: Association between sociodemographic profile and health insurance among study subjects

Variables	Health Insurance(n=1124)		Total	Chi-square	p-value
	Yes(n=444)	No(n=680)			
Age					
<18	2	2	4	1.72	0.633
18 to 44	275	401	676		
45 to 60	132	211	343		
≥61	35	66	101		
Gender	**Yes(n=444)**	**No(n=680)**	**Total**	**Chi-square**	**p-value**
Male	209	322	531	0.09	0.927
Female	235	358	593		
Education	**Yes(n=444)**	**No(n=680)**	**Total**	**Chi-square**	**p-value**
Illiterate	62	150	212	35.48	#≤0.000
Primary School	89	152	241		
Middle School	73	115	188		
High School	78	140	218		
Intermediate/Diploma	89	83	172		
Graduate	51	36	87		
Post Graduate	2	4	6		
Income	**Yes(n=444)**	**No(n=680)**	**Total**	**Chi-square**	**p-value**
No Income	71	113	183	56.72	#≤0.000
Less than 2000	11	21	32		
2000 -4000	28	53	81		
4001 – 6000	21	82	103		
6001 – 8000	42	95	137		
8001 -12000	82	158	240		
More than 1200	189	158	347		
Card Holders	**Yes(n=444)**	**No(n=680)**	**Total**	**Chi-square**	**p-value**
APL	8	17	25	22.85	#≤0.000
BPL	415	573	988		
No	21	90	111		
Marital status	**Yes(n=444)**	**No(n=680)**	**Total**	**Chi-square**	**p-value**
Married	381	577	958	0.196	0.658
Unmarried	63	103	166		

 # p<0.000 is statistically highly significant.

On the other hand, 60.5% of the study subjects were not enrolled in any health insurance scheme. Among the reasons cited, the most prevalent was a lack of awareness of insurance benefits, reported by 54.11% of respondents. This suggests that inadequate dissemination of information regarding the advantages of health insurance is a major barrier to enrolment.

Further barriers to health insurance enrolment were explored among the 700 study participants, with findings showing that complex enrolment procedures (21.47%) and high premium costs (8.52%) were significant deterrents. A smaller percentage of respondents (5.4%) reported a lack of proper documentation as a reason for not enrolling in health insurance, suggesting that administrative requirements may be an obstacle for certain individuals. Moreover, mistrust in insurance providers was reported by 10.44% of respondents, reflecting concerns regarding the reliability and credibility of insurance schemes [Table 2].

Table 2: Barriers to universal health insurance coverage among study subjects

Barriers to health insurance	Frequency (n=734)	Percentage (%)
Complex enrolment procedures	146	19.89%
High premium cost	58	7.90%
Lack of awareness of insurance benefits	422	57.49%
Lack of proper documentation	37	5.04%
Mistrust in insurance providers	71	9.67%

*response rate for barriers to health insurance coverage in the study subjects was 734.

DISCUSSION

The study findings highlight critical gaps in health insurance awareness, enrolment, and continuity, particularly among urban and slum populations in India. A significant proportion of the study subjects (60.5%) were not enrolled in any health insurance scheme, with lack of awareness regarding insurance benefits being the most commonly cited reason (57.49%). Complex enrolment procedures (19.89%) and mistrust in insurance providers (9.67%) further hindered coverage. Additionally, among those who

had enrolled in health insurance (39.5%), nearly 29.5% had not renewed their policy, primarily due to low awareness (70.99%) about the importance of continuous coverage. These findings align with previous studies, which have also reported poor health insurance penetration and substantial financial risks due to out-of-pocket healthcare expenditures.

Further supporting these observations, Suvarna Madhukumar et al found that in a Bangalore rural population, only 22.7% of households had health insurance, and misconceptions about insurance were common. Many respondents believed health insurance was solely for reimbursing drug costs (11%) or compensating for adverse events (38%), indicating a lack of proper understanding.8 Moreover, Mendhe HG et al highlighted the role of universal health coverage (UHC) in reducing catastrophic out-of-pocket expenditure (OOPE), as only 1.36% of respondents under UHC faced catastrophic healthcare costs, compared to 43% of those not enrolled.[7] This emphasizes the importance of expanding insurance coverage to prevent financial hardships.

According to Luke et al. (2020), the most common barriers to health insurance acquisition in South India were lack of awareness (39.3%), perceived irrelevance (35.7%), and high premiums (17.9%).[9] Similarly, Singh SK et al,[10] reported that despite the availability of free vaccination services, a large proportion of children aged 12–23 months in cities like Pune (50%), Bhubaneswar (41%), and Jaipur (21%) received vaccinations from private facilities. The study also revealed weak health insurance coverage, with only one-fifth of urban poor households having at least one insured member, a trend reflected in the current study's findings.

The present study's findings reinforce these previous research outcomes, underscoring the urgent need for targeted awareness campaigns, simplified enrolment procedures, and trust-building initiatives to improve health insurance penetration. Addressing these barriers through policy interventions can enhance financial protection, reduce healthcare inequities, and ensure wider access to essential health services.

CONCLUSION

The study highlights critical gaps in health insurance coverage, providing valuable insights for the government and policymakers to develop or refine policies that enhance health insurance coverage in urban slums. By identifying these gaps, targeted interventions can be designed to improve the effectiveness of health policies, ensuring they cater to the specific needs of underserved populations. Addressing these inequalities can lead to reduced out-of-pocket healthcare expenses, ultimately improving the economic stability and well-being of slum residents. Strengthening health insurance penetration can also enhance financial security, reduce the risk of catastrophic medical expenses, and improve overall productivity within these communities.

Recommendations

These findings underscore the need for targeted interventions to enhance awareness, simplify enrolment procedures, and address affordability concerns to improve health insurance coverage rates. Addressing these barriers by Implement local volunteer-led, culturally tailored health insurance education, digitize and simplify enrolment and renewals, subsidize premiums for the poorest households. Foster trust through visible, accountable partnerships between insurers and community networks

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